The central activity of the CMIB unit is to develop small molecules to probe and control the biological activities of key targets involved in cancer.

These are mainly non-B nucleic acid structures (Quadruplexes) and Kinases. IR-photoexcitable probes designed both for subcellular tracking and targeted photodamage represents also an important research axis. The drug and probe discovery activity is sustained by Molecular Modelling approaches and Multimodal Imaging (TEM, NanoSIMS, IRM). The CMIB unit is hosting the Institut Curie–CNRS proprietary library comprised of over 9000 chemical compounds and the preclinical IRM imaging and chemical imaging facilities.

The main research themes of the unit include:

- G-quadruplex targeting agents
- DNA targeted fluorescent dyes
- Kinase inhibitors
- Photo and radiosensitizers for Retinoblastoma and Glioblastoma therapy.
- Medicinal chemistry (Hit to lead optimization, building of focused libraries)
- Molecular dynamics and virtual screening
- Multimodal imaging for 2D and 3D chemical mapping
- Development of software and Image acquisition, processing and analysis
Key publications

Year of publication 2018

Filippo Doria, Valentina Pirotta, Michele Petenzi, Marie-Paule Teulade-Fichou, Daniela Verga, Mauro Freccero (2018 Aug 30)
**Oxadiazole/Pyridine-Based Ligands: A Structural Tuning for Enhancing G-Quadruplex Binding.**
*Molecules (Basel, Switzerland)* : 23 : 2162 : DOI : 10.3390/molecules23092162

Xiao Xie, Oksana Reznichenko, Ludovic Chaput, Pascal Martin, Marie-Paule Teulade-Fichou, Anton Granzhan (2018 Aug 27)
**Topology-Selective Fluorescent “Light-Up” Probes for G-Quadruplex DNA Based on Photoinduced Electron Transfer.**
*Chemistry (Weinheim an der Bergstrasse, Germany)* : 24 : 12638-12651 : DOI : 10.1002/chem.201801701

Annalisa Patriarca, Charles Fouillade, Michel Auger, Frédéric Martin, Frédéric Pouzoulet, Catherine Nauraye, Sophie Heinrich, Vincent Favaudon, Samuel Meyroneinc, Rémi Dendale, Alejandro Mazal, Philip Poortmans, Pierre Verrelle, Ludovic De Marzi (2018 Jul 17)
**Experimental set-up for FLASH proton irradiation of small animals using a clinical system**
*International Journal of Radiation Oncology • Biology • Physics : Published ahead of print : DOI : 10.1016/j.ijrobp.2018.06.403*

Marlène Rasschaert, Josef A Schroeder, Ting-Di Wu, Sergio Marco, Andréa Emerit, Heiko Siegmund, Claudia Fischer, Nathalie Fretellier, Jean-Marc Idée, Claire Corot, Christoph Brochhausen, Jean-Luc Guerquin-Kern (2018 Jul 10)
**Multimodal Imaging Study of Gadolinium Presence in Rat Cerebellum: Differences Between Gd Chelates, Presence in the Virchow-Robin Space, Association With Lipofuscin, and Hypotheses About Distribution Pathway.**
*Investigative radiology* : 53 : 518-528 : DOI : 10.1097/RLI.0000000000000490

Lina Saker, Samar Ali, Caroline Masserot, Guillaume Kellermann, Joel Poupon, Marie-Paule Teulade-Fichou, Evelyne Ségal-Bendirdjian, Sophie Bombard (2018 Jul 3)
**Platinum Complexes Can Bind to Telomeres by Coordination.**

M Lupu, Ph Maillard, J Mispelter, F Poyer, C D Thomas (2018 Jun 2)
**A glycoporphyrin story: from chemistry to PDT treatment of cancer mouse**
models.